

Application No. 10/675,118
Amendment dated April 10, 2006
Reply to Office Action of February 9, 2006

REMARKS

Status Of Application

Claims 1-26 are pending in the application; the status of the claims is as follows:

Claims 1-26 are rejected under 35 U.S.C. § 102(b) as being anticipated by M.M. Salama "Design Consideration for Composite Drilling Riser", *Offshore Technology Conference*, May 1999 ("Salama").

Claims 27 and 28 are rejected under 35 U.S.C. § 103(a) as being unpatentable over M.M. Salama "Design Consideration for Composite Drilling Riser", *Offshore Technology Conference*, May 1999 ("Salama") in view of U.S. Patent No. 2,957,794 to W.B. Shetterly et al. ("Shetterly Patent").

Claims 31, 34, and 37 are rejected under 35 U.S.C. § 103(a) as being unpatentable over M.M. Salama "Design Consideration for Composite Drilling Riser", *Offshore Technology Conference*, May 1999 ("Salama") in view of U.S. Patent Application Publication No. 2003/0152790 A1 to Halladay et al. ("Halladay Publication").

Claim Amendments

Claim 21 has been amended to better explain the meaning of a "Y-shaped" sealing portion. These changes are not necessitated by the prior art, are unrelated to the patentability of the invention over the prior art, and do not introduce any new matter.

No New Matter

This Amendment is being presented promptly after the discovery of the need therefor. This Amendment does not affect the scope of the claims, does not introduce any new matter, does not present any new issue, does not require any additional search, and will not present an undue burden on the personnel of the Patent and Trademark Office.

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Accordingly, it is respectfully requested that the Amendment be entered in accordance with 37 C.F.R. § 1.312.

35 U.S.C. § 102(b) Rejection

The rejection of claims 1-26 under 35 U.S.C. § 102(b) as being anticipated by M.M. Salama "Design Consideration for Composite Drilling Riser", *Offshore Technology Conference*, May 1999 ("Salama"), is respectfully traversed based on the following.

A rejection under § 102(b) requires that each element of the claim be found within the four corners of the reference. With respect to claims 1-26, each of independent claims 1, 10, and 22 claim a reinforcing layer "adjacent to the outside of the liner." The innermost layer of the structural composite disclosed in Salama is separated from the metal liner by an "interface" or shear ply of 2.3 mm thick hydrogenated nitrile rubber ("HNBR"). (Salama, page 4, column 2)

The Salama reference does not disclose a reinforcing layer adjacent to the metal liner. To the extent that the innermost layer of the structural composite overlayer comprising E-glass reinforcing fiber is a reinforcing layer as asserted by the Examiner, that layer is not adjacent to the metal liner. Rather, the innermost layer of the structural composite disclosed in Salama is separated from the metal liner by an "interface" or shear ply of 2.3 mm thick hydrogenated nitrile rubber ("HNBR"). (Salama, page 4, column 2). Of course, claims 2 - 9, 27, 28; 11 - 21; and 23 - 26, which depend on independent claims 1, 10, and 22 respectively, all require the placement of the reinforcing layer adjacent to the metal liner which is not disclosed by the Salama reference.

Furthermore, Claim 1 requires that the shear ply be placed "over" the reinforcing layer. There can be no semantic discussion of the term "over." If a first layer is placed within the circumference of a second layer, the first layer certainly can not be considered to be "over" the second layer. In this case, Salama et al discloses (page 4, column 2), and the Examiner has stated (paragraph 2 of Section 3 of the February 9, 2006 Office Action),

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that the shear ply of the Salama structure is between the liner and the structural overwrap. The liner is the innermost layer, thus the shear ply is next, and the structural overwrap then covers the entire structure. There is no linguistic construction wherein the shear ply could be considered to be "over" the "reinforcing layer" (the Examiner has equated the structural overwrap with the "reinforcing layer" of the present invention). In fact, Salama's construction is the reverse; the structural overwrap is over the shear ply. Thus, the element of "a shear ply layer over said reinforcing layer" is not found in the Salama reference and the rejection under §102(b) is, therefore, inappropriate.

The element of "a shear ply layer over said reinforcing layer" is present in each of independent claims 1, 10, and 22 and is therefore also present in each of the dependent claims. Accordingly, it is respectfully requested that the rejection of claims 1-26 under 35 U.S.C. § 102(b) as being anticipated by M.M. Salama "Design Consideration for Composite Drilling Riser", *Offshore Technology Conference*, May 1999 ("Salama"), be reconsidered and withdrawn.

35 U.S.C. § 103(a) Rejection

The rejection of claims 27 and 28 under 35 U.S.C. § 103(a), as being unpatentable over M.M. Salama "Design Consideration for Composite Drilling Riser", *Offshore Technology Conference*, May 1999 ("Salama") in view of U.S. Patent No. 2,957,794 to W.B. Shetterly et al. ("Shetterly Patent"), is respectfully traversed based on the following.

The first step of the obviousness evaluation is to determine the content of the art. Salama discloses that the innermost layer of the structural composite be separated from the metal liner by an "interface" or shear ply of 2.3 mm thick hydrogenated nitrile rubber ("HNBR"). (Salama, page 4, column 2). Salama et al. specifies that "[t]he liner is treated to prevent the rubber shear ply from bonding to the liner," and mentions that movement between the structural composite overwrap and the liner is inherent. (Salama, page 4, column 2). According to the Examiner, the Shetterly Patent discloses "the roughening of a

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metal surface . . . for the purpose of obtaining an improved bond between the metal and epoxy."

A second step in the obviousness evaluation is to consider the aspects of the claimed invention. The invention discloses the use of engaging surfaces on the outside of the metal liner for improving the adhesion or engagement between a reinforcing layer and the liner. The engaging surfaces provide a form of mechanical attachment between the liner and reinforcing layer. (Paragraph [0021]).

The next step is to determine the differences between the art and the invention. Salama specifically teaches the inherency of movement and the treatment of the liner to prevent bonding with the HNBR shear ply, thus assisting in movement of the liner. In contrast, the present invention claims a structure for limiting the movement between the liner and the reinforcing layer by creating a mechanical interface between the liner and the reinforcing layer. Thus does Salama not only fail to disclose the raised areas claimed in claims 27 - 28, it actually teaches away from the raised areas as it favors freedom of movement for the liner. The Shetterly Patent teaches that the bonding of silicone rubber to metal is improved through roughening of a metal surface, but it never refers to use with risers or similar apparatus, as is the intended use for the current invention. As such, Shetterly is not familiar with the particular problems associated with the construction of deep water composite drilling risers (pressure, salinity, corrosion, temperature) and therefore can not address the particular problems facing the present inventor. Thus, Shetterly is non-analogous art. As the Examiner is aware, prior art references must either be in the field of the applicant's endeavor or, if not, then be reasonably pertinent to the particular problem with which the applicant was concerned in order to be relied upon as a basis for rejection of a claimed invention. Because Shetterly is concerned with the binding of rubber to metal, while the applicant is concerned with the binding of metal to a composite reinforcing layer, Shetterly is not within, nor reasonably pertinent to, the proper field of endeavor. Thus, Shetterly, at least, is not relevant and should not have formed the basis for the Examiner's rejection.

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The last step is to determine whether the differences would have been obvious to one of ordinary skill in the art at the time of the invention.

The claims were rejected over Salama in conjunction with Shetterly. This is an improper combination of references because Salama teaches away from an engaging surface between the reinforcing layer and the liner. Salama teaches prevention of bonding the liner with the shear ply so that the liner can move somewhat freely. In contrast the present invention claims an engaging surface designed to improve adhesion between the liner and the reinforcing layer thereby restricting movement of the liner. Finally, as discussed above in relation to the rejection under §102(b), the construction of the Salama structure is different from the present invention such that Salama can not be used as a basis for a rejection under §103(a). Specifically, Salama discloses the placement of a shear ply between the liner and the reinforcing layer (temporarily accepting the Examiner's construction that Salama's "structural composite overlayer" is equivalent to the claimed "reinforcing layer"). The shear ply is designed to allow some differential movement between the liner and the "structural composite overlayer". The present invention attempts to minimize this differential movement through the use of the claimed raised surfaces and depressions. Thus, Salama is fundamentally at odds with one of the objectives of the invention and does not teach or suggest this limitation. Therefore, it would not have been obvious for one having ordinary skill in the art to combine Salama with Shetterly because Salama teaches away from such engaging surfaces and Shetterly is non-analogous art which does not offer any reason to apply its methods to risers in the way disclosed.

Accordingly, it is respectfully requested that the rejection of claims 27 and 28 under 35 U.S.C. § 103(a) as being unpatentable over M.M. Salama "Design Consideration for Composite Drilling Riser", *Offshore Technology Conference*, May 1999 ("Salama") in view of U.S. Patent No. 2,957,794 to W.B. Shetterly et al. ("Shetterly Patent"), be reconsidered and withdrawn.

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35 U.S.C. § 103(a) Rejection

The rejection of claims 31, 34, and 37 under 35 U.S.C. § 103(a), as being unpatentable over M.M. Salama "Design Consideration for Composite Drilling Riser", *Offshore Technology Conference*, May 1999 ("Salama") in view of U.S. Patent Application Publication No. 2003/0152790 A1 to Halladay et al. ("Halladay Publication"), is respectfully traversed based on the following.

The combination of Salama with Halladay is a combination that would not have been obvious to one of ordinary skill in the art. Because Halladay is non-analogous art, there would be no motivation for one skilled in the art to look to Halladay to solve the particular problems addressed in the present invention. For example, as the Examiner has stated (Section 6 of the February 9, 2006 Office Action), Halladay is directed to the pigmentation of rubber through the use of metal powders. In contrast, claims 31, 34, and 37 are directed to a performance enhancing layer comprised of a corrosion resistant metal placed on the innermost side of a deep sea drilling riser. One skilled in the art would look to prior art which discloses metal layers such as chrome, nickel, etc. (see paragraph 0016 of the specification), used in drilling applications, not patents directed to metal impregnated rubber. Significantly, those skilled in the art would not look to Halladay because Halladay is directed to the protection of electrometric substrates (paragraphs 0003, 0004, and 0011), not a metal substrate such as a titanium or steel liner for a drilling riser.

Accordingly, it is respectfully requested that the rejection of claims 31, 34, and 37 under 35 U.S.C. § 103(a) as being unpatentable over M.M. Salama "Design Consideration for Composite Drilling Riser", *Offshore Technology Conference*, May 1999 ("Salama") in view of U.S. Patent Application Publication No. 2003/0152790 A1 to Halladay et al. ("Halladay Publication"), be reconsidered and withdrawn.

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CONCLUSION

Wherefore, in view of the foregoing amendments and remarks, this application is considered to be in condition for allowance, and an early reconsideration and a Notice of Allowance are earnestly solicited.

This Amendment does not increase the number of independent claims, does not increase the total number of claims, and does not present any multiple dependency claims. Accordingly, no fee based on the number or type of claims is currently due. However, if a fee, other than the issue fee, is due, please charge this fee to Hitchcock Evert LLP's Deposit Account No. 503374.

Any fee required by this document other than the issue fee, and not submitted herewith should be charged to Hitchcock Evert LLP's Deposit Account No. 503374. Any refund should be credited to the same account.

If an extension of time is required to enable this document to be timely filed and there is no separate Petition for Extension of Time filed herewith, this document is to be construed as also constituting a Petition for Extension of Time Under 37 C.F.R. § 1.136(a) for a period of time sufficient to enable this document to be timely filed.

Any other fee required for such Petition for Extension of Time and any other fee required by this document pursuant to 37 C.F.R. §§ 1.16 and 1.17, other than the issue fee, and not submitted herewith should be charged to Hitchcock Evert LLP's Deposit Account No. 503374. Any refund should be credited to the same account.

Respectfully submitted,

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